Abstract Submitted
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Optimizing Near-vacuum NIF hohlraum drives for ICF SEBASTIEN LE PAPE, LAURENT DIVOL, LAURA BERZAK HOPKINS, ANDY MACKINNON, NATHAN MEEZAN, DARWIN HO, ARTHUR PAK, JOE RALPH, STEVEN ROSS, STEVE HAAN, PRAV PATEL, JACK CAGGIANO, RICHARD BIONTA, LLNL, TAMMY MA, Lawrence Livermore National Laboratory, RYAN RYGG, DAVID FITTINGHOF, SHAHAB KHAN, ALEX HAMZA, PETER CELLIERS, LLNL, ALEX ZYLSTRA, MARIA GATU-JOHNSON, HANS RINDERKNECHT, JOHAN FRENJE, MIT, GARY GRIM, LANL, ROBERT HATARIK, LLNL — Near Vacuum Hohlraum (NVH) is a high coupling platform that might provide a path to ignition using High Density Carbon (HDC) with 10 ns long pulses. We have investigated in a series of experiments on the National Ignition Facility (NIF), our ability to control the symmetry of the implosion in this high efficiency platform. Keeping control of the symmetry as the hohlraum fills in with ablated gold is the main challenge of NVH hohlraum. To help inner beam propagation by increasing the distance from the hohlraum wall to the capsule, the hohlraum diameter was increased from 5.75 mm to 6.72 mm, results from of these experiments will be presented. To reach an ignition relevant design, the adiabat has to be lowered. To lower the adiabat, the 2 shock pulse shape length was increased from 4.5 ns up to 8 ns, results will be presented. This work was performed under the auspices of the U.S. Department of Energy by the Lawrence Livermore National Laboratory under contract DE-AC52-07NA27344. [1] Le Pape, S., at al., Phys. Rev. Lett. 112, 225002 (2014) - Observation of a Reflected Shock in an Indirectly Driven Spherical Implosion at the National Ignition Facility. [2] Mackinnon, A. J., et al.. High-density carbon ablator experiments on the National Ignition Facilitya). PHYSICS OF PLASMAS 21, 056318 (2014)

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